Time Series Analysis of Satellite Images using Pixel-Set Encoders and Temporal Self-Attention

P. AnanyaSahiki

pursuing his Masters of Technology in the stream of Datascience at Jawaharlal Nehru and Technological University Gurajada, Vizianagaram. Email: ananyapechetti@gmail.com

Satellite image time series, Large-scale control of agricultural parcels is a problem that is extremely important from both a political and economic standpoint. In this regard, automated classification of satellite image time series using hybrid convolutional-recurrent neural architectures has shown promising results. We suggest an alternate method that takes advantage of the convolutional layers being replaced with encoders that work with arbitrary sets of pixels to take advantage of the normally low resolution of openly accessible satellite photos.It is a collection of time- and space-varying satellite photos of the same location. A SITS utilises various satellite sources to produce a larger data set with close space between images. The resolution and registration restrictions must be respected in this scenario.

It is possible to recognize how the Earth is changing, to identify the factors causing these changes, and to forecast future changes by using satellite measurements. The combination of data from ecosystem models and remotely sensed data presents a chance to forecast and comprehend the behaviour of the Ecosphere. It is easier to observe accurate spatio-temporal structures in range images with sensors that have high temporal and spatial resolutions. Spectral and spatial dimensions along with temporal elements enable the detection of complex.

For automated crop categorization, practitioners primarily use classic techniques like Randomized Rainforest (RF) and Svms (SVM), which work on handcrafted features. Convolutional neural networks and recurrent neural networks, two deep learning techniques recently used for acquiring spatial and temporal features have significantly improved classification performance. For the purpose of classifying crops, hybrid neural architectures that combine convolutions and repeating units into a single architecture are the most advanced at this moment.

The distribution of spectra so over parcels' full spatial extent can be easily separated using set-based encoders.

About the Author

Ananya Sahiki Pechetti is currently pursuing his Masters of Technology in the stream of Datascience at Jawaharlal Nehru and Technological University Gurajada, Vizianagaram.His enthusiasm towards Datascience and Machine learning engineering motivated to analyse and executive solutions in the field of Datascience.With this background, he is adept at picking up new skills quickly to deliver robust solutions to the most demanding of businesses.